



Active Thermal Control Systems

Johnson Space Center (JSC) provides expertise and facilities for the development and testing of flight and new technologies for spacecraft and extravehicular equipment thermal control systems. JSC has provided design, development, test, and analysis for the International Space Station (ISS) Active Thermal Control System (ATCS), Extravehicular Activity (EVA) systems, ISS freezers, and advanced ATCS technologies.

Services Provided

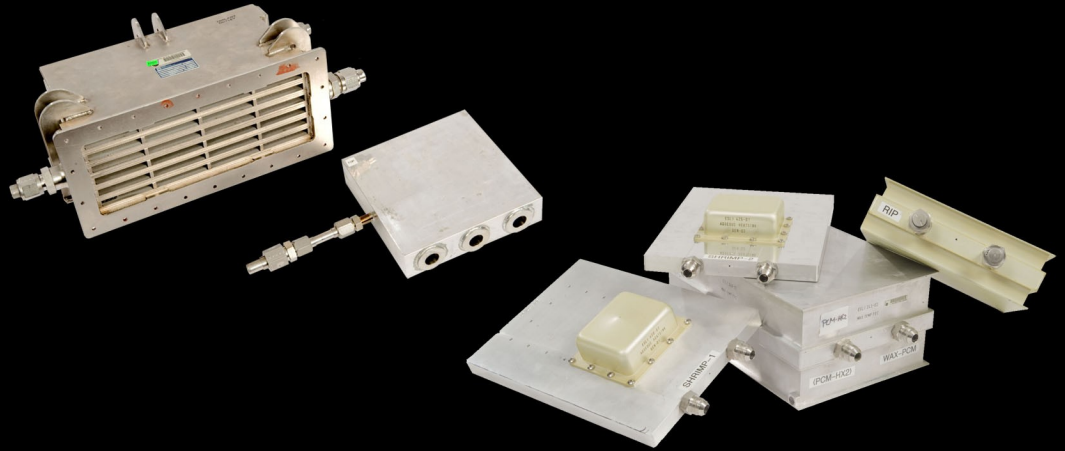
- Development and testing of ATCS and related technology
- Testing and analysis of ATCS
 - Payload heat exchanger simulation
 - Hydraulic heat exchanger simulation
 - ATCS radiation simulation
 - Component level life testing
 - Thermal properties analysis
 - Low-temperature performance evaluation
 - Environmental Control and Life Support Systems compatibility
 - Materials compatibility
- Testing and analysis of systems leveraging experience with the following systems:
 - ISS ATCS
 - EVA systems
 - ISS freezers
 - Crew Return Vehicle ATCS



Thermal Control Systems Design and Development

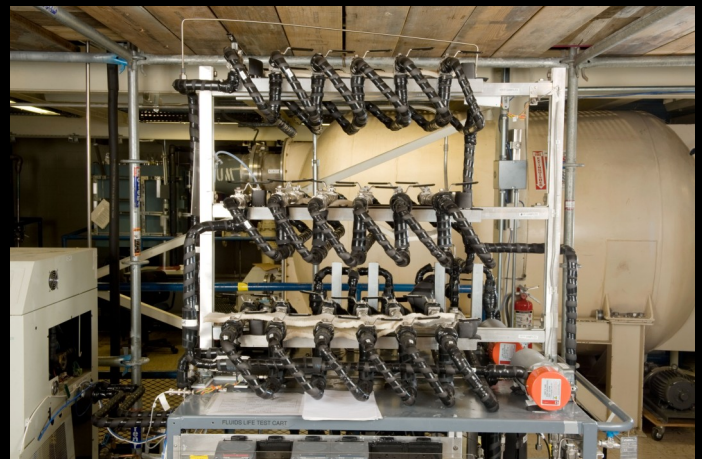
From the simplest satellite to the most complex human-rated vehicle, all spacecraft require thermal control. The JSC Thermal Systems team provides expertise in the design and development of thermal control systems for various spacecraft. Expertise is available in the following areas:

- Heat Acquisition
 - Coldplates
 - Heat exchangers
- Heat Transport
 - Pumps
 - Plumbing
 - Fluids
 - Heat pipes
 - Heat straps
- Heat Rejection
 - Radiators
 - Evaporators
 - Sublimators



Active Thermal Control Systems (ATCS) Laboratory

The ATCS Laboratory provides the ability to test active thermal control systems in a laboratory environment using chiller carts, cold plates, heat loads, and other thermal system simulators to determine thermal system performance. Capabilities include thermal control system fluid evaluation, systems test and analysis for heat acquisition and heat transfer, evaporator and condenser evaluation, and development and performance evaluation of radiators.



Thermal Control System Fluids Life Test

Cold Stowage Systems Laboratory

The Cold Stowage Systems Laboratory provides hardware testing and processing capabilities for cold stowage hardware. Products developed and tested in the laboratory include the ISS Cold Enclosure Phase Change Material (PCM) Augmenting Capsule (ICEPAC), the General Laboratory Active Cryogenic ISS Equipment Refrigerator (GLACIER), coldbag, and the Minus Eighty degree Laboratory Freezer for ISS (MELFI) engineering unit.

We have developed customer-friendly agreements to streamline business relationships and are eager to share our unique facilities and expertise with new customers. We invite your inquiries regarding application or adaptation of our capabilities to satisfy your special requirements. Briefings on general or specific subjects of mutual interest can be arranged at JSC or at your business site.

Facility Testing Information

<http://jsceng.nasa.gov>

Point of Contact

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